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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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MOTOROLA, INC.
1303 EAST ALGONQUIN ROAD
IL01/3RD
SCHAUMBURG, IL 60196

EXAMINER

SAMS, MATTHEW C

ART UNIT	PAPER NUMBER
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2643

DATE MAILED: 08/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/008,332	Applicant(s) SHPERLING ET AL.	
	Examiner Matthew C. Sams	Art Unit 2643	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 May 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>5/9/03, 3/12/02</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This office action has been changed due to the amendment filed on 5/11/2005.

Information Disclosure Statement

2. The information disclosure statements filed on 5/9/2003 and 3/12/2002 have been considered.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-16, 19 and 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ramesh (US-6,205,127) in view of Gans et al. (US-5,943,372 hereafter, Gans).

Regarding claim 1, Ramesh teaches a wireless communication system providing service to a plurality of mobile stations with phase-shift transmits diversity. (Fig. 1 [100], Col. 1 lines 12-16, Col. 3 lines 6-25 and Col. 6 lines 20-27) Ramesh teaches a phase-shift modulating a first signal with a first control signal producing a first phase-shift modulated signal and a second distinct phase-shift modulating a second signal with a

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second control signal to produce a second phase-shift modulated signal. (Fig. 5, 7, 15 and 16). Ramesh teaches transmitting the first phase-shift modulated signal by a first antenna and transmitting the second phase-shift modulated signal by a second antenna. (Fig. 5 & 7) Ramesh teaches the first control signal is synchronized with the second control signal. (Fig. 15, Fig. 16 and Col. 12 line 43 through Col. 13 line 29) Ramesh differs from the claimed invention by not mentioning the phase shift as being time-varying. However, Gans teaches an oscillator that applies a time-varying phase shift. (Col. 2 lines 2-55 and Col. 3 lines 64-67) At the time the invention was made, it would have been obvious to one of ordinary skill in the art to incorporate the time-varying phase shift of Gans into the wireless communication system of Ramesh. One of ordinary skill in the art would have been motivated to do this since a time-varying phase shift allows for rapid fading at the receiver antenna. (Col. 2 lines 7-12)

Regarding claim 2, Ramesh in view of Gans teaches a first time-varying phase-shift modulated signal including a first constant phase shift (Ramesh Fig. 15 [1511]) and a first time-variable phase shift of 180 peak deviation (Ramesh Fig. 15 [1513]) operable in a phase direction. (Gans Col. 2 lines 2-55)

Regarding claim 3, Ramesh in view of Gans teaches a first time-varying phase-shift modulated signal including a first constant phase shift (Ramesh Fig. 15 [1511] & Fig. 16 [1611]) and a first time-variable phase shift of 180 peak deviation (Ramesh Fig. 15 [1513] & Fig. 16 [1613]) operable in a phase direction. Ramesh in view of Gans teaches a time-varying phase offset that is continuously varied from left-hand circular to right-hand circular polarizations. (Gans Col. 2 lines 2-55)

Regarding claim 4, Ramesh in view of Gans teaches a second time-varying phase-shift modulated signal including a second constant phase shift (Ramesh Fig. 16 [1611]) and a second time-variable phase shift of 180 peak deviation (Ramesh Fig. 16 [1613]) operable in a phase direction. (Gans Col. 2 lines 2-55)

Regarding claim 5, Ramesh in view of Gans teaches a second time varying phase-shift modulated signal including a second constant phase shift (Ramesh Fig. 15 [1511] & Fig. 16 [1611]) and a second time-variable phase shift of 180 peak deviation (Ramesh Fig. 15 [1513] & Fig. 16 [1613]) operable in a phase direction. Ramesh in view of Gans teaches a time-varying phase offset that is continuously varied from left-hand circular to right-hand circular polarizations. (Gans Col. 2 lines 2-55)

Regarding claim 6, Ramesh in view of Gans teaches a step of transmitting the first time-varying phase-shift modulated signal in a main antenna. (Ramesh Fig. 5 [507-1] and Gans Col. 2 lines 2-55)

Regarding claim 7, Ramesh in view of Gans teaches a step of transmitting the second time-varying phase-shift modulated signal in a diversity antenna. (Ramesh Fig. 5 [507-2] and Gans Col. 2 lines 2-55)

Regarding claim 8, Ramesh in view of Gans teaches combining a first input signal (Ramesh Fig. 15 [501]) and a second input signal (Ramesh Fig. 15 [1505]) to produce a composite signal, generating a first and second signal from the composite signal where the first signal is based on a first carrier and the second signal is based on a second carrier. (Ramesh Fig. 15)

Regarding claim 9, Ramesh in view of Gans teaches the communication system operating according to the CDMA based communication protocol. (Ramesh Col. 6 lines 20-27)

Regarding claim 10, Ramesh in view of Gans teaches a wireless communication system providing pluralities of mobile stations with an apparatus for providing time-varying phase-shift transmit diversity. Ramesh in view of Gans teaches a first signal path to provide a first signal, a second signal path to provide a second signal, a phase-shift controller adapted to provide two synchronized control signals. Ramesh in view of Gans teaches a time-varying phase-shift a first signal with a first control signal producing a first time-varying phase-shift modulated signal and a second distinct time-varying phase-shift a second signal with a second control signal to produce a second time-varying phase-shift modulated signal. (Ramesh Fig. 5, 7, 15, 16 and Gans Col. 2 lines 2-55) Ramesh in view of Gans teaches transmitting the first time-varying phase-shift modulated signal by a first antenna and transmitting the second time-varying phase-shift modulated signal by a second antenna. (Ramesh Fig. 5 & 7 and Gans Gans Col. 2 lines 2-55) Ramesh teaches the first control signal is synchronized with the second control signal. (Fig. 15, Fig. 16 and Col. 12 line 43 through Col. 13 line 29)

Regarding claim 11, Ramesh in view of Gans teaches a first phase-shift modulated signal including a first constant phase shift (Ramesh Fig. 15 [1511]) and a first time-variable phase shift of 180 peak deviation (Ramesh Fig. 15 [1513]) operable in a phase direction.

Regarding claims 12 and 13 the limitations of claim 12 and 13 are rejected as the same reason set forth in claims 3 and 5.

Regarding claim 14, Ramesh in view of Gans teaches a second phase-shift modulated signal including a second constant phase shift (Ramesh Fig. 16 [1611]) and a second time-variable phase shift of 180 peak deviation (Ramesh Fig. 16 [1613]) operable in a phase direction. (Gans Col. 2 lines 2-55)

Regarding claim 15, the limitations of claim 15 are rejected as the same reason set forth in claims 3 and 5.

Regarding claim 16, Ramesh in view of Gans teaches a first and second time-varying phase-shift element comprising a phase shift of 180 peak deviation. (Ramesh Fig. 15 [1513] and Fig. 16 [1613] and Gans Col. 2 lines 2-55)

Regarding claim 19, the limitations of claim 19 are rejected as the same reason set forth in claim 6.

Regarding claim 20, the limitations of claim 20 are rejected as the same reason set forth in claim 7.

Regarding claim 21, Ramesh teaches a wireless communication system compatible with CDMA. The CDMA specification requires control reference signals of 19.6 MHz, an integer multiple of 1.2288 MHz, or an integer multiple of 50 Hz. Therefore, it is obvious that one of ordinary skill in the art would be motivated to use control reference signals compatible with the IS95 standard.

Regarding claim 22, Ramesh teaches a phase controller comprising a four-port hybrid combination element. (Fig. 13 [1307])

Regarding claim 23, the limitations of claim 23 are rejected as the same reason set forth in claim 9.

5. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ramesh in view of Gans as applied to claim 10 above, and further in view of Harbin et al. (US-5,488,737 hereafter, Harbin).

Regarding claim 17, Ramesh in view of Gans teaches a first and second phase shifting element, but differs from the claimed invention by not showing the element as a ferrite phase shift circuit. However, Harbin teaches adjusting of phases with a ferrite phase shifter. (Col. 12 lines 15-19) Therefore, it is obvious that one of ordinary skill in the art would be motivated to use the ferrite phase shifter of Harbin as the phase shifting element for Ramesh in view of Gans because they are commercially available and well known in the art.

6. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ramesh in view of Gans as applied to claim 10 above, and further in view of Millar (US-6,087,868).

Regarding claim 18, Ramesh in view of Gans teaches a first and second phase shift elements (Ramesh Fig. 15 and 16), but differs from the claimed invention by not showing an open loop and closed loop linearization and compensation circuit. However, Millar teaches a phase shift element in an open loop and closed loop linearization and compensation circuit. (Col. 4 line 65 through Col. 5 line 7) It is obvious that one of ordinary skill in the art would be motivated to use an open and closed loop linearization and compensation circuit of Millar as the first and second

phase shift elements of Ramesh in view of Gans because the phase shifts should be consistent between the two shifting elements to simplify the realignment.

7. Claims 24-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ramesh in view of Gans and Yada (US-5,748,669).

Regarding claim 24, Ramesh in view of Gans teaches a wireless communication system providing service to a plurality of mobile stations with time-varying phase-shift transmits diversity. (Ramesh Fig. 1 [100], Col. 1 lines 12-16, Col. 3 lines 6-25, Col. 6 lines 20-27 and Gans Col. 2 lines 2-55) Ramesh in view of Gans teaches combining a time-varying phase-shift first signal with a first control signal producing a first time-varying phase-shift modulated signal and producing a second distinct time-varying phase-shift signal with a second control signal to produce a second distinct time-varying phase-shift modulated signal. (Ramesh Fig. 5, 7, 15, 16 and Gans Col. 2 lines 2-55) Ramesh in view of Gans teaches transmitting the first time varying phase-shift modulated signal by a first antenna and transmitting the second time varying phase-shift modulated signal by a second antenna. (Ramesh Fig. 5, 7 and Gans Col. 2 lines 2-55) Ramesh in view of Gans teaches the first control signal is synchronized with the second control signal. (Ramesh Fig. 15, Fig. 16 and Col. 12 line 43 through Col. 13 line 29)

Ramesh in view of Gans differs from the claimed invention by not showing a computer program for the operation of the wireless communication system. However, Yada teaches a control unit (Fig. 1 [4]) for a base station that has a processor, which operates according to programs stored in memory. It is obvious that one of ordinary skill in the art would be motivated to use the control unit of Yada in the wireless

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communication system of Ramesh in view of Gans for controlling the operations of the system because having a computer program automates the entire system and allows for remote control of the base station.

Regarding claim 25, the limitations of claim 25 are rejected as the same reason set forth in claim 2.

Regarding claim 26, the limitations of claim 27 are rejected as the same reason set forth in claims 3 and 5.

Regarding claim 27, the limitations of claim 28 are rejected as the same reason set forth in claim 4.

Regarding claim 28, the limitations of claim 29 are rejected as the same reason set forth in claims 3 and 5.

Regarding claim 29, the limitations of claim 30 are rejected as the same reason set forth in claim 6.

Regarding claim 30, the limitations of claim 31 are rejected as the same reason set forth in claim 7.

Regarding claim 31, the limitations of claim 32 are rejected as the same reason set forth in claim 8.

Regarding claim 32, the limitations of claim 33 are rejected as the same reason set forth in claim 9.

Regarding claim 33, Yada teaches a medium comprising one of paper, a programmable gate array, application specific integrated circuit, erasable programmable

read only memory, read only memory, random access memory, magnetic media and optical media. (Col. 6 lines 26-37)

Response to Arguments

8. Applicant's arguments with respect to claim 1-33 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US-4,072,830 to Gitlin et al. regarding compensating for time-varying phase shifts in an echo canceller.

US-5,437,055 to Wheatley, III regarding an antenna system for multipath diversity.

US-5,457,712 to Weerackody regarding a method of providing time diversity.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew C. Sams whose telephone number is (571)272-8099. The examiner can normally be reached on M-F 7:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz can be reached on (571)272-7499. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MCS
7/25/2005


CURTIS KUNTZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600